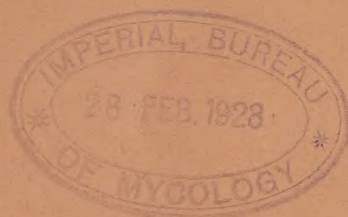


PALESTINE.



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REPORT  
OF THE  
FRUIT COMMISSION.



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PALESTINE.

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REPORT  
OF THE  
FRUIT COMMISSION.



PALESTINE.

*Despatch No. 974.*

*Reference No. 8499/27.*

GOVERNMENT OFFICES,

JERUSALEM,

30th June, 1927.

SIR,

I have the honour to forward a copy of the Report of the Committee appointed by Lord Plumer to make recommendations for the better preparation and marketing of local citrus and other fruits, to which his despatch, No. 1533 of the 28th of December, 1926, refers.

I forward also copies of memoranda, of the 10th and 25th of May, by the Director of Agriculture and Forests upon the Report.

2. It is unnecessary to emphasise the need to promote what is at present the most profitable industry in Palestine and one that seems capable of very considerable expansion; but the extent to which Government can take part in this promotion depends very largely on financial considerations.

3. Of the recommendations of the Committee, summarised in paragraph 46 of its Report, some may be put into effect by departmental action or, especially as regards the grading and branding of fruits and regulation of shipments, be implemented by the interests directly concerned with Government assistance.

4. The Department of Customs will endeavour to simplify the formalities of export as recommended; and investigations are being made of the possibility of facilitating export by rail and of improving the conditions for anchorage at Jaffa; and also into the question of an exportation due to cover expenditure on additional services.

5. As to the major recommendations of the Committee, you have already sanctioned a proposal (see Lord Plumer's despatch No. 613 of the 21st of March) that increased provision be made available for an intensive campaign against Black Scale.

But it appears to me that, in present financial circumstances, it will be difficult, if not impossible, for this Government, from their own resources to defray the cost of the research work advocated by the Committee and the Director of Agriculture.



In this connection I would invite attention to the suggestions made in Mr. Sawyer's memorandum of the 25th of May that the good offices of the Empire Marketing Board should be sought for technical advice and assistance in the marketing of Palestine fruit in Great Britain, and also for material assistance in the establishment of a properly equipped Citrus Research Station and ancillary services, the estimated costs of which are given in this memorandum.

6. With this object in view I would ask that, if you see no objection, the Report of the Committee and memoranda of the Director of Agriculture be referred to the Imperial Economic Commission and the Empire Marketing Board, with a request for technical observations thereon and information as to what material assistance might be forthcoming from them. I would also request that 200 copies of the Committee Report should be printed at the expense of this Government and 150 of these copies sent to me for local distribution.

I have, etc.,  
(Signed) G. S. SYMES,  
*Officer Administering the Government.*

THE RIGHT HONOURABLE L. C. M. S. AMERY, P.C., M.P.,  
His Majesty's Principal Secretary of State  
for the Colonies.

# REPORT OF THE FRUIT EXPORT COMMISSION.

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Terms of reference "To make recommendations for the better preparation and marketing of local citrus and other fruits."

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## *Members :*

Mr. J. E. F. CAMPBELL (Chairman).  
Mr. W. H. A. PHILLIPS and Mr. SARGENT, representing the  
General Manager, Palestine Railways.  
Mr. A. F. NATHAN, O.B.E., and Mr. G. E. BODKIN, represent-  
ing the Director, Department of Agriculture and Forests.  
Mr. N. S. BOUTAGY, M.B.E., representing the Director,  
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MUHAMMAD EFF. ABDUL RAHIM.  
Mr. DIMITRI TADROS.  
Mr. P. A. BATTY.  
Mr. J. ABRAYAYA.

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## I.—ORANGES.

The Report of the Imperial Economic Committee on Fruit states <sup>General.</sup> that "oranges from Palestine enjoy a high reputation on the United Kingdom market, but this reputation is in some jeopardy owing to the falling off in the quality of some of the recent consignments."

The Imperial Committee have drawn the attention of the Palestine Government to this matter, and urged the importance of suitable measures for the maintenance of the standard of fruit exported. (See page 118, para. 18, of the Report of the Imperial Economic Committee. Third Report—Fruit, published in 1926 by H.M.'s Stationery Office, price 4s. 6d. net.)

In reviewing the precautions taken in various countries for maintaining the standard of their produce, the Fruit Export Commission



have found it necessary to sub-divide their investigation into four main heads, namely: A, the Grove; B, the Fruit; C, Transport; and D, the Market.

A. THE  
GROVE.

Education of  
Growers.

2. The quality of exported fruit must depend ultimately on the scientific standard of cultivation in the Grove. The orange growers of Palestine include some of the most enlightened agriculturists of the country. They would welcome Government direction through the medium of travelling instructors and educative literature on the various problems of orange cultivation. Some of the most urgent of these problems are:—

- (a) How far apart trees should be planted;
- (b) What are the best stocks on which to graft;
- (c) What is the best bud-wood to use;
- (d) How much irrigation is required and by what method;
- (e) What are the best manures and fertilisers to use and what quantities are required;
- (f) What precautions are necessary against the most destructive diseases and pests, such as gummosis, Mediterranean fruit-fly and black scale.

Need for  
Research.

3. The problems enumerated are not merely academic. They vitally affect the future of the industry. Until the good season of 1923/24, there was little new plantation, improved export until recent years, and even still being due to gradual recovery from the effects of the war. During the last four years, however, the area of land under orange cultivation has increased rapidly.

See attach-  
ment I.

Bearing commences from six to eight years after plantation, so that mistakes which may be made this year in the methods of planting new groves will only begin to affect the standard of fruit for export in 1933. The devastation produced by black scale in Syria and in the Northern District of Palestine is only too evident. The same pest has now appeared in the Jaffa groves. Gummosis throws thousands of trees out of bearing every year. The influence of incorrect fertilisation in the grove on the keeping qualities of the fruit is believed to account for a large part of the loss sustained during transit.

The technical evidence produced before the Commission shows that, important as these questions are to the future of the industry, it is not in the power of the Agricultural Department to direct growers to their proper solution, without further research. Such research in citrus cultivation as has been undertaken by institutions like the P.I.C.A., the Palestine Zionist Executive, the Mikveh Israel, has been necessarily limited in scope, and the results have not been made available to the general body of growers. Research work in other countries, under



different conditions of soil and climate, cannot be taken as a reliable basis for improving the specialised Jaffa orange with the unique qualities on which its reputation depends.

The Commission is strongly of opinion, therefore, that the Government should undertake Citrus Research without delay. The following measures appear to be the most urgent:—

- (a) The establishment of a Fruit Research Station to conduct experiments, to distribute information, to co-ordinate results collected from other sources, and to prepare selected stock and bud-wood for dissemination.
- (b) Organisation and control of Government experiments in private groves by co-operation with the owners. Experience has shown, however, that the results of such partially controlled observation are never conclusive. This measure is only recommended, therefore, in order to supply much-needed information during the years which must elapse before a Fruit Research Station can yield results.
- (c) An organised scheme of Economic Research, designed to investigate the true causes of deterioration during transit, and the most profitable means of distribution.

4. Growers have experienced a yearly loss estimated at about 20 per cent. of the total crop from the effects of storms and dry winds. Selection of the best types of shelter is admittedly important; but some doubt appears to exist among experts as to the relative merits of planting cyprus or bitter orange trees round groves, or of erecting enclosing mud-brick walls, as adopted in Cyprus.

Storms and frosts.

Frost has proved disastrous to this season's Spanish crop, involving an estimated loss slightly over 50 per cent. Local opinion is found to differ as to whether the best precaution to take is winter irrigation or the provision of orchard heaters. Some growers hold that the former device encourages pests, while the latter is expensive.

Again, the only measure which the Commission can recommend is to rely on experiments to be conducted by a Citrus Research Station.

5. The Commission recommends that the Agricultural Department should distribute information to growers showing the relative costs and qualities of different kinds of fertiliser.

Supplies of fertilisers to growers.

Co-operation amongst growers is probably the only effective means of reducing purchase costs.

Price  
structure.

II.—— 6. The attached schedules of actual costs of cultivation show that the average total expenditure, excluding the cost of the land, necessary to produce a bearing grove is about £E.75 per dunum, spread over about 5-6 years. The average annual cost after bearing commences is from £E.10 to £E.15 per dunum. The normal yield per dunum will then average 100 cases per season. By improved methods of irrigation and mechanical cultivation it is probable that costs might be substantially reduced.

Credits to  
growers.

7. Large sums are now advanced each season by merchants in order to secure the produce of the growers so accommodated. The credit of the individual grower is often impaired by the long wait required for his first returns. Reparation after the war and the heavy costs of cultivation have driven many growers into debt at high rates of interest. To purchase fuel for irrigation he is often forced to sell his crop before the fruit appears. With estate encumbered and produce sold, the grower has no inducement to join a co-operative group or to market his own produce. The first requisite is clearly an Agricultural Bank. The Commission urges the Government to arrange for the issue of advances by one of the leading banks on reasonable terms, long term loans on mortgages of estates, and short term loans on the security of produce. This will not only relieve the grower from unduly high rates of interest and allow him to sell his crop in the best market, but will encourage co-operation, since better terms of credit will be offered to co-operative groups. To quote the Report of the Imperial Economic Committee (page 30, section XIII., paragraph 78), "the credit of a whole industry is something more than the sum of the credit of its individual members."

Pests and  
diseases.

8. There is still much need for the instruction of growers in precautions required against insect pests and plant diseases. The Commission recommends more vigorous propaganda by the Agricultural Department through the media of educative literature and travelling instructors.

The serious spread of black scale demands an extensive and immediate fumigation campaign, the total cost of which is reported to be from five to six piastres per tree, including labour. Compulsory declaration, treatment, and isolation against pests and diseases are already provided for in the Plant Protection Ordinance, 1924. The Commission considers that in view of the danger of black scale spreading to the groves of Southern Palestine, fumigation on an effective scale should be undertaken, the grower being charged with half the expenses of the operation. Export of infected fruit should be prevented, the means suggested to ensure this being to certify groves before packing is allowed.



Imported trees should also be fumigated under Government supervision, as foreign certification of freedom from disease has proved an insufficient safeguard.

9. A number of problems connected with irrigation still require research. These include irrigation costs, the proper quantity, method and time of irrigation, and the best means of drainage. The relative economy and efficiency of wind-pumps, oil engine-pumps, and electric pumps are also matters requiring further investigation. Irrigation.

10. The attached tables and schedules give a number of statistics collected and examined by the Commission in regard to the growth of orange cultivation in Palestine. Statistics.

11. The Palestine orange grower has to pick his fruit some four weeks before it can be sold to the consumer in England. The whole industry depends on the peculiar lasting qualities of the Jaffa orange. In spite of these, fruit sent in the same consignments exhibit every variety of condition on arrival in England. The attached example illustrates the relative proportions and prices of different grades of fruit in two shipments, and demonstrates the effect of the conditions under which fruit is picked. B. FRUIT.  
Picking. III. —

12. In Palestine the fruit are usually carried from the trees in baskets to a packing-house within the grove, where they are selected and graded by the packers. In California fruit are transported in specially constructed boxes to a central packing house, where the fruit of a whole district are cleaned, selected, graded and packed under co-operative supervision. Most of these operations are carried out mechanically, and the cases are then placed in a refrigerator car on the railway to the market. In Spain chemical treatment is now being tested as one of the operations of the packing-house with a view to increasing the lasting qualities of the fruit. Packing houses.

In 1921 a large packing-house was constructed on American lines at Petah-Tikvah. The project failed, largely owing to local distrust for the new methods employed. Growers would not risk their main crop, so that fruit of doubtful quality was purchased for the experiment. The packers employed were said to be inexperienced, and the lasting qualities of the fruit were thought to be impaired by the vigorous mechanical handling employed. The Commission regard the establishment of district packing-houses in Palestine as premature at present, although this ideal should not be lost sight of in the future.

Co-operation between growers is a necessary preliminary. Even where co-operation has been achieved for some twenty-six years, as in [186525]

the Pardess Society, a central packing-house has not yet been attempted. Conditions of transport from grove to packing-house are still too primitive. Moreover, it is not yet certain that mechanical brushing and cleaning do not, in fact, damage the resisting qualities of the fruit.

The Commission are of opinion that central packing-houses should be left to private initiative following on the development of co-operation. Meanwhile growers should be encouraged to use packing houses large enough to contain several days' supply of fruit, since certain flaws in oranges do not appear for two or three days after picking. Good lighting and ventilation are also important.

Export of  
green fruit.

13. A glance at the accompanying diagram of annual price changes shows that higher prices are usually offered at the start of the season than for at least a month later. This encourages the export of considerable quantities of green fruit. These are often too sour to eat, and the result detracts from both price and reputation. One remedy would be to develop a special early variety of orange to catch the Christmas market. This has been tried with some success in Spain. This solution must take time, and will depend on experiments in the proposed Citrus Research Station.

Another device has been attempted in Spain, where the Chamber of Commerce, during some seasons, has forbidden export before November 10th. There is some local support for similar Government prohibition in Palestine, before, say, November 20th. This limitation would still enable the first shipments to arrive in time for the Christmas market. In view, however, of the earlier ripening of fruit from Jericho, Gaza and Tiberias, it would be unfair to impose so autocratic a restriction on the industry, though district control should be considered.

A third remedy has been adopted in South Africa, where fruit must be 75 per cent. yellow before export is allowed. Inspection of 5 per cent. of the fruit on export is found to be sufficient. The Commission favours inspection before export (see paragraph 19 later) on the general ground of eliminating all fruit below a prescribed standard, whether the cause be immaturity or decay.

Types of  
packing.

14. Two types of packing are in common use in Palestine. In the "local packing" fruit are not of uniform size, succeeding layers being smaller in certain counts. This leaves space, and makes it easier to clear a given crop. Dealers and retailers at home, however, show a preference for "American packing" where the contents of a given box are all of the same size. The result has been a steady increase in "American," as opposed to "local," packing.



15. The number of fruit or "count" in a case is marked on the outside, the largest sized fruit packing only 80 to the case, and the smallest 250. The commonest ranges for American packing are 100, 120, 150, 180, 210, 240, and for local, 80, 88, 96, 128, 136, 144, 152, 160, 210, 250. The best prices are usually obtained for the smaller counts, particularly the 180 and upwards. In the very large sizes the fruit is often too dry. Sales would be facilitated if sizes were confined to standard counts, for which the Commission recommends American packing. Size of fruit.

16. The "Valencia" type of case used in Spain is made of less expensive wood than the ordinary case used in Palestine, and leaves wide ventilation spaces between the boards. Examination of the condition of the fruit by the buyer is said to be possible without the necessity of breaking open the case and re-sealing before despatch to the retailer. For this reason it is possible that brokers' charges could be reduced were Valencia cases generally used. It is uncertain, however, whether fruit in these partially open cases would stand the rigorous demands of transport by camel, car and rail, and especially the exposed passage in an uncovered lighter to a steamer anchored in an open roadstead. Type of case.

The Commission is informed that private experiments are being conducted this season with a view to testing the relative advantages of Valencia and of ordinary cases. This is clearly a suitable subject for the Economic Research recommended in paragraph 3 (c) of this Report.

17. As pointed out by the Imperial Economic Board (see paragraph 1 above), the high reputation of the industry is in danger, owing to the increasing export of consignments in bad condition. Need for fruit inspection.

Another result is that Palestine oranges are subjected to more careful inspection at the home ports. A large proportion of cases have to be opened and reclosed at great risk of deterioration of the fruit. Further, the whole trade has to bear the cost of this examination in the form of higher brokers' expenses.

Cases of fruit that are already rotten have been known to leave this country, identification of the shipper being obscured by change of brand. The damage to the whole industry is obvious.

18. In Jamaica a Produce Inspection Law has been framed, under which produce is branded as graded, and the export of fruit in a bad condition prohibited. Methods of fruit inspection.

The Imperial Economic Board records its very warm support for any such action, and proposes that the Executive Commission should encourage the inauguration of schemes of fruit inspection by moderate

grants for a short term of years in Colonies needing such initial assistance. "The proposed grants might be on a pound-for-pound basis, and in appropriate cases might be allocated towards the engagement of experts as inspectors, both to supervise export and to advise and educate producers of fruit grown for the United Kingdom market. Such grants might take the form of contributions to cover half the cost of passages and half the salary and allowances for a term of years on condition that the scheme of inspection was approved after reference to the Executive Commission." (See paragraph 75 on page 29 of the Fruit Report of the Imperial Economic Committee.)

In South Africa compulsory Government fruit inspection is already established. The inspectors grade fruit as "fancy," "choice," or "standard," and refuse export to lower grades.

In Spain an elaborate scheme of compulsory inspection has been inaugurated this season to prevent the export of fruit damaged by frost. There the total crop is about nine or ten times that in Palestine, and export takes place from four principal ports. District Boards carry out the inspection, with appeal to Harbour Boards at each of the ports. A Central Board decides policy and imposes the scale of fines. At present penalties range from 2,000 pesetas (about £E.60) for the first offence, 5,000 pesetas (£E.150) for the second offence, to complete prohibition of export for the whole season. In no case is the penalised consignment allowed to be exported. The Commission is informed that although these restrictions have probably saved the sale of this season's crop from the disaster threatened, objections have been so severe that compulsory inspection will probably be abandoned until the emergency is repeated.

Fruit  
inspection  
recommended.

19. The Commission consider that it would be valueless to issue any form of mark or certificate of good quality, since the conditions of transport are so full of risk that there is no guarantee that the quality will be preserved, or even that "choice" and "standard" grades will not be reversed, owing to varying rates of deterioration. The only certainty is that the condition of a given consignment will not improve. Hence the only means of protecting the reputation of the export as a whole is to refuse the shipment of bad fruit. The common interest of the growers and the importance of the premier export of the country appear to justify special legislation. Government inspectors acting under the Department of Agriculture should be empowered to examine all consignments of oranges arriving for export at Jaffa, Haifa, Kantara, and to prohibit shipment of fruit in a condition unfit for export. The inspectors should be selected by the Economic Commission from the experts employed by the trade in England. The funds necessary to provide three inspectors for six months, if not



wholly available from the budget of the Department, should be covered by a small inspection charge on the cases exported, or by accepting assistance from the Economic Commission, or by both.

20. Even more important than inspection as an immediate means of protecting trade reputation is the identification mark on all exported fruit. Every case shipped already bears some mark. Owing to the expense of registering trade-marks, most of the brands employed are unregistered. One trade-mark may cost as much as £E.15 to register, and a grower may use as many as eight different brands. The best fruit present no difficulty, since the grower soon finds the value of registering a trade-mark to protect his reputation. The ordinary grower, however, who has not registered, and who receives a low price for one consignment is tempted to change his brand. Hence there is no incentive to correct mistakes, nor to raise standards of production, and the buyer of Palestine fruit, confused by the multiplicity of changing brands, approaches his purchase in suspicious gloom. Identification.

In South Africa every box submitted for inspection must be clearly marked by the registered brand of the exporter, or his name or other means of identification.

The Commission consider that similar provision should be made in Palestine with the additional limitation that any alternative means of identification employed must not be changed without express Government sanction.

21. As the Commission has been requested to report on the import duties imposed on packing materials, it has reviewed the amount and incidence of the taxation to which the industry is subjected in Palestine. The following contributions to Revenue were made during 1926 :— Taxation.

(a) Tithes (including waqf share)	...	...	...	£E.19,447
(b) Import Duty on packing materials	...	...	...	4,885
(c) Duty on oil fuels used for irrigation of groves,				
about	...	...	...	2,000
			About	£E.26,332

In addition, railway freight charges were met to a total of £E.7,821, and a variety of port dues and other charges were included in the shipping freights paid by the industry.

The total gross produce for the year is valued at £E.566,194, so that the three taxes mentioned represent about  $4\frac{1}{2}$  per cent. on the gross value of the produce.

Tithes are paid wholly by growers of miri groves, *i.e.*, those outside the privileged mulk groves in the immediate neighbourhood of Jaffa. In regard to tithes the Commission recommends:—

- (a) the immediate adoption of a fixed commuted tithe pending the imposition of a land tax;
- (b) the earliest possible substitution of the tithe by a land tax, which should no longer continue the unfair distinction between miri and mulk groves.

In regard to the import duties on packing materials, the Commission finds that the percentage of the total that is shipped by growers who pack their fruit and hence pay these duties is 35 per cent. to 40 per cent. Exemption will, therefore, benefit growers to the extent of about £E.1,830, or just under one millieme per case.

As the grower also pays the whole of the tithe and fuel duties, and as exemption is allowed in the parallel examples of containers and of similar materials required for the wine industry, the Commission would welcome exemption of the remaining duties on packing materials.

Storage at  
the port.

22. For efficient handling at the port, a large amount of good storage is required. Provision for this should be given priority in port improvements at Jaffa and Haifa. As many as 40,000 cases have been loaded from the quay at Jaffa in a single day. Owing to the vagaries of winter weather, storage may be required for 100,000 cases. This requires 2,000 square metres, even if cases are piled seven high, the maximum strain which the boxes will bear. In a few years, as the crop increases, a proportionate expansion of good storage space will be needed. Some relief is being found by the gradual substitution of camel by motor transport to the quay. A system of mechanical shoots or travelling belts to the quay-side may widen the area available for such stores.

Price  
structure.  
V. \_\_\_\_\_

23. The attached schedule of price structure has been compiled from information collected by the Commission. The cost of picking and packing varies with the quality of labour employed. In one grove where labour was paid at ₪.25 per day the total cost of picking and packing averaged ₪.7.4 per case.

An average of 12 other groves in which labour at ₪.17½ per day was employed shows a total cost from ₪.5 to ₪.5.5 per case.

Fruit decay.

24. Little appears to be known of the causes of fruit decay in storage and transit, or of how different kinds of mould can be prevented. The solution of this problem alone would amply justify the expense of a Citrus Research Station.



25. The attached diagram shows the bulk export of oranges from Jaffa since 1919. Statistics.  
VI. ———

26. Over bad roads and short distances the camel is still the chief means of communication with the nearest port or main line railway station. C. TRANS-  
PORT.  
Haulage from  
grove to port  
or railways.

Camel transport to Jaffa quay costs  $\text{P. } 1\frac{1}{2}$  per case from groves near the town, and  $\text{P. } 2\frac{1}{2}$  per case from those in neighbouring villages within about 10 miles (16 kilometres). The camel is expensive, slow, and exposes the fruit to damage by weather and vibration. Moreover, the daily arrival of from two to three thousand camels at the congested quay-side added considerably to delays and confusion in shipping.

As roads improve and over longer distances the light motor lorry is fast replacing the camel.

One ton lorry over a haulage of five kilometres can do the work of 10 to 12 camels in the same time. The fruit needs less handling; is less exposed to damage; and can be picked later. The cost is from one-half to one-and-a-half piastres per case cheaper, the gain being larger as the distance increases.

27. Road improvement by making motor transport possible will relieve the industry, as shown above, of overhead charges amounting to from  $\text{P. } \frac{1}{2}$  to  $\text{P. } 1\frac{1}{2}$  per case. It should be observed that this extra charge on the grower due to bad roads amount to from  $\text{£E. } \frac{1}{2}$  to  $\text{£E. } 1\frac{1}{2}$  per dunum per annum, on a grove producing 100 cases per dunum. As his yearly working costs are  $\text{£E. } 10$  to  $\text{£E. } 15$  per dunum, this represents an addition of 5 to 15 per cent. on the growers' costs of production, or from one-quarter to one-half of the tithe, which this year is  $\text{P. } 2.4$  per case. The Commission, therefore, desires to draw the attention of the Government to the urgent importance to the industry of improving road communication between grove and port or railway. Importance  
of good roads.

28. In 1922 the Palestine Railways obtained 200 specially ventilated trucks fitted with vacuum brakes. The Commission is informed that, in spite of the advantages of these trucks over those of the Egyptian State Railways, which are imperfectly ventilated and which let in rain, the latter are more often used for the transport of oranges. The reasons assigned are (a) that owing to the excess of import over export in trade with Egypt, cargo has to be found for returning Egyptian trucks, and (b) that the ventilated trucks have to be used on the Jerusalem gradients, since they alone have adequate brakes. Trucks.

The Commission request that measures be taken to enable the ventilated trucks to be used for fruit export before next season.

Port  
facilities.

29. The trade suffers considerably from lack of proper port facilities at Jaffa. Loading by lighters costs  $\frac{P}{T}$ . 1.06 per case, including portorage.

In the journey from store to ship's hold, the fruit probably suffer worse damage than in the whole of the rest of the four weeks which intervene between the picking of the fruit and their sale in the United Kingdom.

Insurance rates are very high. On an average, loading is impossible altogether on about 80 days of the season. This necessarily adds to freight charges, which have to cover shipping costs during delays enforced by periods of storm.

The need for the storage of oranges before export is itself a reflection on the loading facilities at the port. It is far more important that the latter should be improved than that more storage for oranges should be provided.

Stowage.

30. Fruit for the United Kingdom have to remain in the ship's hold on an average for 18 to 19 days, between ports. Deterioration of the fruit during this period constitutes one of the chief problems of the trade.

The causes have still to be discovered, and it is important that experiments be undertaken with a view to establishing the chief reasons for decay and means of their prevention. This is another urgent subject for the Economic Research recommended in paragraph 3 (c) of this Report.

Ventilation and temperature are known already to be important factors. Orange cases should not be stacked too high, as they yield to pressure, and the fruit suffer. As far as possible space should be allotted in the 'tween decks, and not in badly ventilated holds. Air channels should be left between cases.

Cold storage is not provided on the majority of steamers nor in the United Kingdom. The value of the former is conjectural, unless supplemented by the latter, since decay sets in rapidly after release from cold storage. The experiment of attempting to preserve the fruit in cold storage until the summer was tried during the Wembley Exhibition, but proved unsatisfactory, as more than half the fruit was spoilt. Moreover, competition with the South African orange begins late in May.

The Commission considers, therefore, that improvement of stowage should begin by insisting on better ventilation during transit.

Meanwhile experiments should be undertaken as to the effects of low temperature, and of the constitution of the atmosphere in which fruit is stored.

31. With a view to compiling statistics of orange export, the Customs Department insists on exporters by rail completing the same formalities as were necessary when the 1 per cent. export tax was imposed. The formalities appear to duplicate information already in the hands of the Railways and cause unnecessary delay. The Commission consider that such formalities should be simplified in the case of perishable fruit. Customs facilities.

32. Most of the Central and Eastern European market is closed to Palestine oranges owing to the prohibition by Italy of import in transit, and to the excessive customs dues imposed by Turkey. Foreign customs.

In the case of Italy, the excuse given is to protect the country from imported pests. Representations should be made to the Italian Government that Palestine oranges are far more free from disease than Italian, that fumigation could be arranged prior to embarkation, and that the gain to Italian shipping and railways would be considerable.

Turkey was the chief pre-war market for large oranges. As cultivation improves fruit tends to increase in size. The English market does not favour large fruit. Hence the loss to the trade is likely to become more and more considerable if export to Turkey does not improve.

33. Until recently there has been only one group of associated liners carrying oranges from Jaffa to the United Kingdom. Collective representation of the trade was attempted during several seasons in order to negotiate with steamship companies as to freight and quality of service. During the last two years another group of steamers have competed for orange freights, and collective representation of the trade has severed into two sections, each dealing with its own group of ocean transport. It is highly desirable that these two sections should collaborate in order to regulate dates of shipment and ports of destination, so that supplies of fruit to markets shall be as evenly distributed as possible. The Commission consider that a cargo of 25,000 cases should normally be regarded as a maximum, due regard being paid to the absorbing powers of different ports, those with superior distributing machinery being able to dispose of larger supplies without depression of prices. With a season of only about 100 loading days, during which a crop of two million cases must be embarked, it follows that a continuous service of shipping is essential. Collective representation.



Insurance

34. Owing to lack of knowledge as to the causes of fruit deterioration during transit, no insurance company will insure the condition of fruit at reasonable rates. Moreover, shipping companies will only be responsible for short-landed cases if each mark of shipment is delivered to the steamer in a separate lighter.

Hence the need for trade research on the one hand, and for compulsory identification marks on the other.

Investigations are now proceeding with a view to insuring the grower against loss from abnormal meteorological conditions.

Price  
structure.

35. Costs per case from the grove to the port in the United Kingdom are given as follows:—

Transport from grove to store on the quay varies	£
according to distance of grove from port ...	0.5 to 2.5
Warehousing on quay ... ..	0.5
Lighterage ... ..	1.0
Stevedoring (including mending broken cases) ...	0.15
Insurance ... ..	0.22
Ocean freight (this year from 1s. 9d. to 2s. 9d.)	10
<hr/>	
Total	£. 12.37 to 14.37

D. SALE.  
Control of  
consignments.

36. Post war conditions and the increasing crop are compelling the exploration of fresh markets.

While this is being done the Commission considers a central control of ports of destination during transit to be premature. The effect of uncertainty on the home buyer would probably outweigh any advantage which might be gained by selection of market.

Publicity.

37. The advantages of publicity for the Jaffa orange are beyond dispute. Publicity is tending to take three forms: (a) Advertisement of Empire produce generally, by the Empire Marketing Board. In most cases the Board urge the British public to buy Empire goods from some Dominion or Dependency because that Dependency buys an overwhelming proportion of British goods. This is not true of Palestine, where it is still extraordinarily difficult to buy British produce. The legend should read, therefore, "Buy Palestine fruit, and make a market for British goods."

One farthing.

(b) The Fruit Trades Federation carry on an "Eat more Fruit" campaign without regard to origin. To this every shipper of Palestine oranges contributes  $\frac{1}{4}$ d. per case, and the broker an equal amount. The Commission is informed that at a cost of £40,000 this campaign has contributed to an increase of fruit consumption in the United Kingdom by over two million sterling last year, and by over three million since 1924.

(c) In connection with the last Jaffa Orange Show it was decided to initiate a publicity campaign in favour of "Jaffa oranges."

The Commission considers that all three forms of publicity should be encouraged, but that the levy of, say, one millieme per case to advertise the "Jaffa orange" would be well repaid.

38. The Empire Marketing Board has just started to issue a weekly report giving every detail of trade information as to world crops of oranges and home prices. This is proving of great value to shippers, and deserves wider distribution. Market intelligence.

The Commission also favours a recent suggestion that premises be taken in Jaffa as a convenient meeting point for growers, merchants and shippers interested in the orange trade of Palestine. Such a mart or exchange room would be suitable for trade negotiation and for the dissemination of trade information.

39. Liverpool originally controlled distribution to the United Kingdom markets. Recently there has been a marked tendency to decentralise, fruit being sent to most of the large ports of the British Isles. This obviates heavy railway freights and minimises risks from strikes. It also helps to open new markets, and to develop the organisation of distribution. The same policy has been followed with encouraging results in developing the Western European markets, by direct shipments to Hamburg, Rotterdam, and Copenhagen, and by trans-shipments from Hull. Distribution.

The Commission wish to emphasise the importance of providing the widest possible distribution of markets, in order to counteract the effects on prices of increasing production.

40. Fruit generally reach the consumer without identification marks. Since even wrappers may be removed, the practice of printing a brand on the actual fruit has been adopted with marked success by certain growers of Californian oranges, Florida grape-fruit, and South African orange. Printing machinery for this purpose is expensive, and will only repay the cost of outlay if large numbers of fruit are branded before packing. This pre-supposes the existence of district packing houses, so that the Commission considers the proposal premature for Palestine. Identification of Palestine oranges.

41. The system of brokers' advances has been criticised in the Report of the Imperial Economic Committee, because the broker's profits are those of a middleman though he may have a partial interest in the fruit, and because the channel of disposal is pledged to that in which the broker is interested. This may be true to some extent of the small broker whose market is limited, and whose advances tend to Brokers' advances.

be speculative. But the evidence before the Commission shows that, in the absence of an Agricultural Bank or of widespread co-operative facilities, the larger brokers represented in Palestine have done much to assist the orange grower to recover from the effects of the war. They possess the organisation for wide distribution of the produce, and have helped to develop new markets. They are not buyers, but sell the produce of their clients by auction on the open market. Their advances have been continuously made to growers whose methods of cultivation they have done their best to improve.

At the same time the system of advances to other than growers has been unduly developed. The result has been the growth of a number of small merchants, who speculate on a rise of price between grove and sale room, and whose profits add to the costs to the consumer without assisting the grower.

Trade repre-  
sentation in  
the United  
Kingdom.

42. The marketing of Jamaican fruit is controlled by a trade representative, who directs the distribution of the produce in the United Kingdom. The Commission considers such an arrangement impracticable in the present state of the trade in Palestine. The trade is developing rapidly, however, and considerable benefit would result if a representative could be appointed with adequate knowledge of the conditions of the trade, who would report periodically for the information of the Palestine growers and shippers. The Commission recommends that the Empire Marketing Board be approached in this regard.

Wholesalers'  
profits.

43. Fruit which is bought by auction by the wholesaler at, say, 15s. a case, may be retailed at 25s. a case, the difference representing considerably more than the grower's return for his produce.

The Commission is informed that an enquiry is now being held in England with a view to analysing the cost of fruit to the home consumer.

Government  
intervention

44. Government intervention may be designed merely to ensure proper quality of exported produce, or it may go further and control shipments.

In Canada, Australia, New Zealand and the fruit-growing States of America, the first type of legislation has been tried with considerable success, and the standard of fruit exported from these countries has reached a high level in consequence.

In Queensland, co-operation between shippers is compulsory, and the Committee so formed control shipments.

In South Africa a Board of Shipping Control has been established under the Fruit Export Act, and in Jamaica shipments are



similarly controlled by Government. It appears that considerable dissatisfaction has arisen in South Africa owing to this measure, and shippers are said to be resorting to export through Portuguese East Africa in order to escape control.

The Commission consider, therefore, that legislation to control shipments of fruit from Palestine to be definitely undesirable.

In regard to legislation to raise the quality of exported fruit, in the Dominions named above, this lays down :—

- (a) certain standards of quality for different grades.
- (b) a minimum degree of maturity.
- (c) a prescribed method of packing.
- (d) a standard size of case.
- (e) a system of marking the cases.

Elaborate inspection at the port of shipment is necessary to enforce such legislation. The Commission has carefully considered the advisability of adopting similar measures in Palestine, but is convinced that even this is premature until correct methods are well established by investigation and research, and until the education of the grower is more fully developed. Competition for the annual Orange Show at Jaffa is already doing much to educate the grower and to direct experiment. This should be supplemented by trade investigation in the United Kingdom as to the relative merits of different types of fruit and packing.

At the present state of trade in Palestine, the only forms of Government intervention recommended are (1) inspection at the port of shipment with a view to rejecting fruit that is unfit for export (see paragraph 19 above), and (2) controlled means of identification (see paragraph 20 above).

45. The chief causes of the deterioration of the standard of Palestine oranges sent to the United Kingdom are found to be as follows :—

- (a) Before the war, oranges of inferior lasting quality were shipped to Turkey, and only the best fruit were sent to the United Kingdom. Since the war the former markets are closed, so that over 95 per cent. of the fruit go to the United Kingdom.
- (b) The need for investing considerable capital in recovering groves abandoned during the war has resulted in many growers falling into debt.

Causes of lower standard of Palestine oranges in the United Kingdom.

Hence the temptation of securing ready cash on bills of lading for export of indifferent fruit has proved too strong in many cases.

- (c) Steamer accommodation has admittedly not been uniformly perfect, so that good fruit have often arrived in worse condition and have been seen to obtain lower prices than fruit shipped of admittedly lower grade.

Exact causes of deterioration are unknown, hence the temptation to chance sending the whole crop, irrespective of grade.

- (d) Unduly large cargoes have been encouraged by post-war conditions of shipping. This necessitates longer periods for loading, and entails greater risks in stowage.
- (e) The practice of buying by the crop rather than by the case has encouraged the extraction of the maximum number of cases in a purchased crop, regardless of quality. Moreover, the merchant is often bound by contract with the broker who finances him to ship to the United Kingdom, rather than in bulk to Egypt.
- (f) Fruit picked in, or immediately after, bad weather is liable to decay during transit. The presence of even one or two bad oranges in a case will ruin the rest during transport lasting three weeks, whereas the pre-war transit of less than one week to Turkey did far less harm.

Summary of  
recommendations.

46. The following is a summary of the Recommendations submitted by the Commission, given in the order in which they occur in this report :—

- (1) The establishment of a Fruit Research Station (para. 3 (a)).
- (2) Government experiments in private groves (para. 3 (b)).
- (3) An organised scheme of economic research (para. 3 (c)).
- (4) Distribution of information as to fertilisers (para. 5).
- (5) Instruction of growers in precautions against insect pests and plant diseases (para. 8).
- (6) An extensive and immediate fumigation campaign against black scale (para. 8).
- (7) Certification of groves and prohibition of export of infected fruit (para. 8).
- (8) Fumigation of imported trees (para. 8).
- (9) Encouragement of larger packing-houses (para. 12).
- (10) Prohibition of shipment unfit for export (para. 19).
- (11) Control of identification (para. 20).
- (12) Immediate commutation of tithe followed by the earliest possible substitution of the tithe by a land tax (para. 21).
- (13) Improvement of road communication between grove and port or railway (para. 27).
- (14) The use of ventilated trucks for fruit export (para. 28).
- (15) Improvement of stowage (para. 30).

- (16) Simplification of Customs formalities (para. 31).
- (17) Representations to the Italian and Turkish Governments (para. 32).
- (18) Regulation of dates and destinations of shipments and limitation of cargoes (para. 33).
- (19) A publicity campaign for the "Jaffa Orange" (para. 37).
- (20) Widest possible distribution of markets (para. 39).
- (21) Trade representation in the United Kingdom (para. 42).

In a number of instances the Commission has considered action to be premature at present, but as the trade is developing rapidly and conditions are changing every year, revision of the whole subject is recommended at the close of next season.

Signed on authority of the Palestine Fruit Export Commission.

(Signed) J. E. F. CAMPBELL,  
(*Chairman*).



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I.  
(Reference paragraph 3.)

GROWTH OF ORANGE CULTIVATION.

Year.	Area of new plantations (Dunums).	Total area under orange cultivation (Dunums).	Estimated Capital Outlay Represented.	Estimated value of Export.
1923 ... ..	...	24,000	£E. 2,062,000	£E. 424,448
1924 ... ..	2,000	26,000	— 152,000	460,350
1925 ... ..	5,000	31,000	— 320,000	551,463
1926 ... ..	7,000	38,000	— 364,000	566,194
1927 ... ..	7,000	45,000	— 280,000	318,922 (Jan. and Feb. only).



## II.

(See paragraph 6.)

DETAILS OF COST OF PRODUCTION OF AN ORANGE GROVE  
PER DUNUM.

**TOTAL COST UP TO BEARING** (six years after planting).

	£E.mms.	£E.mms.
1st year— <i>Cost of land</i> (varies with situation, soil, etc.)	—	10,000
1st year—Buildings, fencing, well-pump, canals, pipes and contingencies	—	15,440
1st year—Preparation and planting.		
Deep ploughing	3,500	
Levelling and cleaning from star. grass, etc.	1,800	
Marking	0,110	
Digging 62 holes for trees	1,240	
Seedlings (62 at $\frac{P}{T}4$ )	2,480	
Digging and transport of seedlings	0,620	
Manure and labour for manuring	1,680	
Planting and watering (62 at $\frac{P}{T}1\frac{1}{2}$ )	0,310	
Irrigation (8 times)	0,960	
Cultivation (8 times)	1,060	
Ploughing (8 times)	0,800	
Bud-wood	0,650	
Budding	0,320	
Tree-guards, setting and tying	2,000	
Supervision	1,360	
Replacements (10 per cent.)	0,570	
Rebudding (10 per cent.)	0,100	
		19,560
2nd to 6th year—Upkeep for five years.		
Manure and labour for manuring	3,000	
Irrigation (8 times per year)	0,960	
Ploughing (8 times per year)	0,800	
Hoing (8 times per year)	1,060	
Opening and closing basins	0,600	
Supervision, spraying, lime-washing, replacements and contingencies	1,580	
	5 × £E.8,000	40,000
<b>TOTAL COST UP TO BEARING</b> (excluding land)		<b>£E.75,000</b>
<b>ANNUAL COST AFTER BEARING.</b>		
7th year onwards—Cultivation and hoeing	2,260	
Manure, fertiliser and labour for manuring	4,240	
Irrigation (10 to 12 times)	1,320	
Opening and closing basins	0,600	
Supporting branches	0,300	
Pruning, spraying, lime-washing and treatment of diseases	0,680	
Supervision (may vary considerably according to size of grove and conditions of management)	1,200	
Taxation (tithe on 100 cases)	2,400	
		13,000
<b>ANNUAL COST AFTER BEARING</b>		<b>£E.13,000</b>

## III.

(Reference paragraphs 10 and 11.)

## COMPARATIVE PRICES BY SHIPMENTS BEFORE AND AFTER STORM.

Steamer ... ..	s.s. "STUART PRINCE."		s.s. "CASTILIAN."	
Conditions of picking	Normal.		After severe storms.	
Date of Departure ...	December 16th, 1926.		December 30th, 1926.	
Date of Arrival ...	December 31st, 1926.		January 15th, 1927.	
Port of Destination...	Manchester.		Hull.	
Date of Sales ...	Between Jan. 4th and Jan. 20th (Sales delayed owing to news of the storms).		Between Jan. 17th and Jan. 20th.	
Grades of Fruit.	Percentages.	Prices.	Percentages.	Prices.
I	% 64·3	s. d. 14 4	% 34·1	s. d. 12 9
II	25·6	13 10	35·8	12 5
III	6·1	13 3	20·0	11 1
IV	2·8	11 1	6·0	9 3
V	1·0	7 1	3·6	0 6
Wasty	0·2	—	0·4	—
Average Price.	—	13 10½	—	11 9

The figures given are compiled from all the auction sales of the two cargoes.

Each cargo totalled about 25,000 cases.

The last of the sales of the first cargo were simultaneous with those of the second.

The fruit in the second cargo were sold within three weeks of picking, while some of those in the first were picked over five weeks before sale.

In the second cargo 4 per cent., or about 1,000 cases were not worth the wood they were packed in (*i.e.*, grades V. and wasty).

These must have contained windfalls.

The effect was to reduce the number of cases classed as grade I. by nearly half (64·3 per cent. to only 34·1 per cent.), and to lower the average price by 2s. 1½d. per case, representing a total loss of about £E.2,500.

V.  
(See paragraph 23.)

### PRICE STRUCTURE

Of Palestine Oranges sold in the United Kingdom. From point of  
Primary Sale in United Kingdom to Producer.

	Per Case £ s d	Percentage. %
Primary Sale in United Kingdom 14s. per case ...	68	100.0
Charges in the United Kingdom :— Handling Fees ... .. 7.5 Brokers' Fees ... .. 2.5 —	10	14.7
Transportation Costs :— Ocean Freight ... .. 10. Insurance ... .. 0.22 Stevedoring ... .. 0.15 Lighterage ... .. 1.0 Warehousing at quay ... .. 0.5 Transport from grove to quay ... 1.5 —	13.37	19.7
Gross return to grower (see below) ... ..	44.63	65.6
	68.0	100.0

### ANALYSIS OF GROSS RETURN TO GROWER.

	Per Case. £ s d	Percentage. %
Costs after cultivation :— Packing and picking (labour at £ 17.5 per day) ... .. 5.5 Packing materials ... .. 6.82 —	12.32	18.1
(See attach- Costs of cultivation :— ment II.) Maintenance of grove (including taxation) ... .. 13.0 (based on an average yield of 100 cases per dunum). Watchmen ... .. 0.25 Amortisation of capital outlay ... 2.5 Interest on capital outlay ... .. 6.2 —	21.95	32.3
Net return to grower (based on a sale price in U.K. of 14s. per case) ... ..	10.36	15.2
(See above) ... ..	44.63	65.6



Ag/22/1/15/2.

Urgent.

DEPARTMENT OF AGRICULTURE AND FORESTS,

JERUSALEM,

10th May, 1927.

CHIEF SECRETARY.

SUBJECT: Report of the Orange Export Committee.

REFERENCE: Your 6007/27 of 26/4/27.

Your Committee is unanimous in the opinion that the establishment of a Citrus Research Station is a matter of the first and urgent importance. As provision of funds for such purpose was deferred by your 17519/26 of 7/12/26 pending discussion with this representative body, I should be glad to learn whether authority can now be granted to select and acquire a suitable site at an estimated cost of £E.2,250—*vide* annexure to my minute of 4/9/26. With reference to the alternative suggestion by His Excellency the High Commissioner, I have indicated in my minute of 14/12/26 that provision for citrus sections at the Acre, Beisan and Jericho Stations has also been indefinitely deferred by your 17701/26 of 3/12/26. The opinion is generally held, however, that a special station devoted exclusively to the improvement of the standard of citrus cultivation, should be established in the Jaffa District as the centre of orange production.

2. I am in entire agreement with the Committee that during the interval which must elapse between the organisation of such a station and the production of results, experiments should be conducted in established groves under departmental supervision. As, however, such experiments will involve the owners in additional trouble and expense, small grants-in-aid will be essential to satisfactory co-operation. It would be proposed to obtain by such means data reflecting:—

- (a) The relative value of the stocks in common use—bitter orange, sweet lemon, etc.—with reference to early maturity, productivity, disease resistance, quality of fruit and senility.
- (b) The effect of different spacings on capital costs, yield and quality of fruit, costs of cultivation and irrigation, disease resistance and senility.
- (c) The duty and costs of irrigation water as applied to different soils by means of various prime movers.
- (d) The most profitable application of natural and artificial manures to orange groves at various stages of development.

3. The material required for such co-operative enquiries would be limited to a set of modules for the control of irrigation and supplies of farm-yard manure and artificial fertilisers. It is probable that the

Chile Nitrate and British Sulphate of Ammonia Federations would supply gratis all fertilisers needed for this purpose. The main item of current expenditure would refer to additional skilled labour for the organisation and control of the experiments, and the detailed harvesting and weighing of fruit from individual trees or plots. Multiplication of an approved scheme at as many centres as possible is, of course, desirable as a means of limiting margins of error. It is consequently urged that provision be made, at the earliest possible date, for the purchase of six modules at an estimated cost of £E.450, and that a grant-in-aid be afforded for a period of six years to cover current costs of an enquiry, as detailed above, at four centres in the Jaffa District, and at single centres in the Jericho and Haifa areas.

4. It is understood that a considerable proportion of the orange crop is now shipped to Great Britain on time charters covering the export season. It should, therefore, be possible to arrange with the charterers for a series of comparative experiments to determine the costs and relative merits of cold-storage, low temperatures, ventilated holds and ordinary stowage as now practised. Alternatively, cold-storage and ventilated space might be obtained in steamers from Australia or New Zealand which frequently discharge part-cargoes of frozen meat, dairy products, etc., at Port Said for the Egyptian markets. It is suggested that the Empire Marketing Board should be approached for assistance in this connection as a technical examination of shipments on arrival would be essential to satisfactory results.

5. The question of shelter from drying winds is intimately connected with tolerance of shade and the control of insect pests and disease. A valuable contribution to this subject is afforded in the proceedings of a recent agricultural conference of the East and South African Dependencies. It was held that where windbreaks had been allowed to get too thick or dense, insect pests were most prevalent, while over-shading generally had the effect, even in the case of coffee, of diminishing yield. A general conclusion was reached, however, that the problem called for carefully organised comparative experiments, which certainly has local application. Official assistance to a systematic examination of different methods of protection would again appear to be well warranted.

6. Disorganisation of supplies, the appearance of synthetic products and price-cutting have resulted in violent fluctuations in the market values of fertilisers, leading to the suspension of a monthly record earlier published in the *Journal of the Ministry of Agriculture*. A statement will, however, be prepared to show the latest unit values of the principal fertilising ingredients in proprietary brands, together with the prices which local agents are authorised to charge. In this

connection I would venture to refer to my Ag/90/1/A of 3/2/25, in which the desirability of legislation on the lines of the Cyprus "Fertilisers Ordinance," is brought under discussion.

7. The schedules of actual costs of cultivation submitted by the Committee, compared with similar records from other orange-producing areas, only serve to accentuate the need for a scientific direction of cultivation and irrigation practice.

8. The demand of the orange-growing industry for adequate credit facilities is typical of the handicap under which Palestinian agriculture has been labouring since the liquidation of the Agricultural Bank. In no other civilised territory is the cultivator left to finance his operations at all stages from planting to marketing, and in this respect the agricultural community was far more advantageously situated under the Turkish regime. A delegation of the functions of a mortgage bank to broker or shipper spells inevitable abuse and locally the evils elsewhere associated with village usury. Recommendations similar in character to those now proffered by your Committee, were earlier submitted by a Committee appointed on 12/6/23 to examine the situation with regard to agricultural loans, whose report would appear to merit reconsideration.

9. Application for a special grant in support of an intensive campaign against black scale was urgently submitted under cover of my Ag/302 of 14/5/26, and referred to the Secretary of State with Despatch No. 613 of 21/4/27, to which a reply is awaited. Propaganda and advice on the control of insect pests of oranges have taken the form of departmental leaflets distributed in the three official languages, together with a wall-chart illustrating the insects involved and prescribing appropriate methods of control. The inadequacy of the field staff of the entomological service is fully recognised. The principle of requiring the owners of orange groves to meet half the costs of fumigation has already been adopted, and a schedule of charges published in the current issue of the *Official Gazette*.

10. You are aware of the efforts which have been made to secure the early appointment of an irrigation officer, for which provision was included in my budget for 1926/27. The investigations now indicated by the Committee appear in my original demand for the organisation of an irrigation service.

11. I agree that pending determination and adoption of methods of shipment which will obviate risks of deterioration in transit, powers should only be taken to prohibit the export of green, inferior and infected fruit. The South African requirement that fruit must be 75 per cent. yellow before export is allowed, if locally adopted, would meet the



difficulty of controlling shipments of early crops from Jericho, Tiberias and Gaza.

Official grading is, however, regarded as essential to the sustained prosperity of the industry, for which contention support is found in the almost universal adoption of this precaution. Additional argument is therein found for the earliest possible enquiry into the applicability of cold storage, low temperatures and special ventilation. The urgent need for refrigerator and ventilated vans on the railway as an essential facility to the development of an export trade in table-grapes, has been urged on other papers (*vide* my Ag/22/1/15/2/1 of 3/5/27). Such rolling stock would be in demand throughout the winter for orange exports, and during the summer for regular consignments of table-grapes. Here again, however, control of temperatures and ventilation should be based on a careful preliminary investigation closely associated with that of shipping conditions.

12. There would appear no valid objection to the compulsory employment of registered brands by all exporters, but, on the other hand, much to be said for the incentive to more careful selection of fruit for shipment which would be thus provided.

13. On a point of taxation and the existing inequable incidence of the tithe on miri and mulk groves, I venture to refer to an earlier suggestion that an export tax would meet every fiscal and technical requirement. It is suggested that such tax should be rated at a figure which would permit exemption from the remaining duties on packing materials and on the small proportion of the crop which is consumed locally, without actual loss of revenue.

14. Provision of better storage at the ports would appear essential, not only to efficient handling, but to any approved form of inspection. No proper examination of fruit would, in present circumstances, be possible at Jaffa if bad weather resulted in a congestion of shipments. Provision should also be made for the fumigation of consignments intended for the Eastern, Egyptian, Central European and Turkish markets. In this connection it may be noted that a thousand truck-loads or, say, 8,000 tons of oranges for Egypt have been treated at Kantara by the entomological service during the past few months in conditions warranted only by the urgency of the public need.

15. A pathological laboratory and low temperature institute should be included in any scheme for a Citrus Research Station. Facilities would be therein found for a study of the causes of fruit decay in storage and transit and methods of control.

16. It is submitted that the relevant recommendations of the Committee are consonant in detail with the policy earlier advocated by this

Department to which it is hoped the Government may now give effect. To this end standing sub-committees with technical qualifications should be constituted to formulate, cost and control:—

- (a) co-operative field experiments as detailed in paragraphs (3) and (5);
- (b) co-operative shipping experiments to determine the relative applicability of cold-storage, low temperatures and ventilation in steamer holds and railway trucks.

Provision is required to cover already costed schemes for:—

- (a) A Citrus Research Station with the addition of a pathological laboratory and low-temperature station, to the costs of which the Empire Marketing Board might be prepared to contribute.
- (b) An intensive fumigation campaign for the control of black scale.
- (c) Inspection of oranges for export at Jaffa, Haifa and Kantara by officers to be selected by the Imperial Economic Commission.

17. In conclusion, it is recommended that the report under review be printed and distributed for general information and referred to the Imperial Economic Commission and Empire Marketing Board for comment and a statement of the amount of financial assistance which can be made available for approved purposes from funds at the disposal of these bodies.

(Signed) E. R. SAWER,  
*Director of Agriculture and Forests.*

No. Ag/22/1/15/2.

DEPARTMENT OF AGRICULTURE AND FORESTS,  
25th May, 1927.

CHIEF SECRETARY.

SUBJECT: Report of the Orange Export Committee.

REFERENCE: Your 7574/27 of 17/5/27.

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I attach, as instructed, an estimate of total expenditure, initial and recurrent, for six years, on the projected Citrus Research Station.

2. With reference, however, to senior staff and the establishment of pathological and low-temperature stations, it is submitted that the requirements of the horticultural industry, as a whole, should be brought under consideration.

3. The diseases of fruit; the place of low-temperatures in storage and transport; problems of packing, inspection and grading of shipments, and numerous allied questions should be extended to all fruits and fruit products which are immediately, or potentially, available for export.

4. The magnitude of the interest may be gauged from the fact that of total exports to the value of £E.976,000 during the year October, 1925, to September, 1926, no less than £E.619,000, or 63·5 per cent., were credited to such classes. It is, moreover, becoming increasingly obvious that horticulture is the only local industry of which the economic soundness is not open to question. Prospects have been opened of new developments in the export of table-grapes and bananas, to which the system advocated for oranges would be equally applicable.

5. A patent obligation on the part of the Government to take more than a detached interest in this industry, has been earlier urged, but no steps towards the establishment of a horticultural service have as yet been rendered possible. The two Inspectors of Agriculture, supported by four sub-Inspectors, are already doubling duty as foresters and have their hands more than full with the demarcation and organisation of the numerous forests recently claimed for the State.



6. It is consequently again submitted that an experienced horticulturist, with a recent training in modern citrus cultivation and research, should be entrusted with the organisation of a service having its headquarters at the Citrus Research Station, for the promotion of all branches of fruit-farming and the control of fruit-exports. I would propose, in the absence of any British Citrus Station of long standing, to institute enquiries during my visit to California as to the possibility of obtaining the services of a recent graduate from the Citrus Research Station of that State at a salary in the grade of £E.550 to £E.750, and refer possible applications for your consideration.

7. The cost of a pathological and low-temperature station would be determined by a scheme of research co-ordinated with the work of the parent station at Cambridge. It is suggested that the Chairman, Empire Marketing Board, should be requested to obtain a detailed indication of undertakings which could be most usefully carried out locally; the cost of the necessary personnel and equipment and the contribution towards such expenditure which the Board might be in a position to afford. It would be very preferable to recruit directly from the staff in training at Cambridge to ensure conformity with approved technique. Two recent graduates at a salary of £E.550 to £E.750, with two junior assistants, would probably be required.

8. The cost of fruit-inspection and, subsequently, grading at the three ports of Haifa, Jaffa and Kantara will similarly be determined by a restriction of effort to the orange trade or an extension to other fruit-exports. In the former case the seconding of Inspectors for six months in each year by the Empire Marketing Board would probably meet the case. It is urged, however, that the prospects of an export trade in table-grapes, based on the results of shipments of similar varieties from Australia and South Africa to England, at, however, other seasons of the year, are sufficiently promising to warrant the full-time employment of trained inspectors. In view of the importance of the interests involved and the demanding nature of the work, it is considered highly desirable that only British officials with the necessary experience should be employed. The cost of bringing men out from, and sending them back to England every year for the orange season, would amount to very nearly that of employing them during the summer months on an inspection of grapes, figs, apricots and other fruits available at that season. Three men on a scale of £E.550 to £E.750 would be required with clerical assistance for the preparation of certificates and the maintenance of records and accounts.

9. Subject to the reservation that assistance may very reasonably be anticipated from the Empire Marketing Board on the accepted

grounds that the Citrus Station would also serve the interests of Iraq and Cyprus, the required establishment would be as follows:—

	£E.
Horticulturist, £E.550 to £E.750, plus expatriation allowance at £E.100 ... ..	650
1 Clerk, grade 3 (a) ... ..	140
1 Pathologist, £E.550 to £E.750, plus expatriation allowance at £E.100 ... ..	650
1 Laboratory Apprentice, grade 3 (b) ... ..	100
1 Cold Storage Officer at £E.550 to £E.750, plus expatriation allowance, £E.100 ... ..	650
1 Laboratory Apprentice, grade 3 (b) ... ..	100
3 Senior Fruit Inspectors at £E.550 to £E.750, plus expatriation allowance, £E.100 ... ..	1,950
3 Clerks, grade 3 (b) ... ..	300
Casual labour ... ..	300
	<hr/>
	£E. 4,840

10. It may be noted that an export tax of 1 per cent. *ad valorem* on the existing trade in fruits would suffice to cover the budget, and would be readily accepted by cultivators and shippers as a negligible payment for the services in question. Alternatively a fixed charge per case of fruit might be instituted to cover costs of inspection and research work at the Citrus Station.

(Signed) E. R. SAWER,  
*Director of Agriculture and Forests.*

## PROPOSED CITRUS STATION.

## CAPITAL EXPENDITURE.

	£E.	£E.
1. 150 dunums of land at £E.15 ... ..	2,250	
Public Works Extraordinary.		
2. Fencing 2,000 m. at $\frac{P}{T}$ 15 ... ..	300	
Gates ... ..	20	320
3. Canalisation :		
Concrete pipes, 1,500 m. at $\frac{P}{T}$ 25 ... ..	375	
Excavation, 65 cm. and laying $\frac{P}{T}$ 5 ... ..	75	
180 standpipes ... ..	180	
4 turnout stands for branch lines at $\frac{P}{T}$ 200... ..	8	
	638	
4. Well and bore ... ..	300	
Engine and pump ... ..	600	
Pumphouse ... ..	100	
	1,000	
5. Storage tank for 150 cub. metres ... ..	300	
6. Modules, weir and automatic register ... ..	100	
7. House for superintendent, including office ... ..	400	
8. Cottages for gardeners ... ..	300	
9. Stabling for four animals and store ... ..	400	
10. Latrines ... ..	100	
11. Dutch barn ... ..	180	
12. Packing shed, 20 by 5 m. ... ..	300	
13. Silo ... ..	120	
14. Windmill and pump ... ..	250	
Equipment, etc.		
15. Deep ploughing by contract, plus preparation and planting at £E.17 per dunum (for particulars <i>see</i> Annexure II., Orange Export Commission's Report) ... ..	2,250	
16. 4 mules at £E.35 ... ..	140	
17. 4 sets of harness at £E.6 ... ..	24	
18. 2 carts: 1 single at £E.18; 1 double at £E.22 ... ..	40	
19. Ploughs, etc.:		
1 Ridging plough (double), 3 rows ... ..	20	
1 No. 8 plough S.A.E., with sub-soiling attachment ... ..	10	
1 No. 6 plough, Victory ... ..	5	
1 No. 4 plough, B.T. ... ..	5	
2 native ploughs ... ..	2,500	
1 disc plough ... ..	20	
1 cultivator (convertible Triplex No. 3 for water furrows ... ..	20	
1 chain harrow ... ..	5,500	
1 zig-zag harrow, S.A.H. 54 ... ..	6	
1 springtooth harrow (Orwell Junior) ... ..	15	
1 drill ... ..	35	
4 horse hoes at $\frac{P}{T}$ 350 ... ..	14	



	£E.	£E.
1 horse mower ... .. 22		
1 horse rake (shafts) ... .. 21		
1 disc harrow ... .. 21		
1 Cambridge roller ... .. 20		
1 power spray (estimates) ... .. 200		
1 overhead irrig. equip. (only No.) ... .. 200		
200 orchard heaters at (price lists) £1 (available) ... .. 200		
	842	
20. Wheelbarrows, hoes, spades, small tools, etc. ...		60
21. Pots and tins ... .. 25		25
22. Seeds, trees and budwood ... .. 400		400
23. Office furniture ... .. 30		30
		<u>£E.10,769</u>
24. Personnel:		
1 Station Superintendent at ₦ 1,500 p.m. ...	180	
1 mechanic at £E.10 p.m. ... .. 120	120	
4 gardeners at ₦ 600 p.m. ... .. 288	288	
Casual labour ... .. 200	200	
		<u>788</u>
25. Recurrent expenditure:		
Forage for four animals ... .. 150	150	
Maintenance, repairs, shoeing, etc. ... .. 50	50	
Water supply, including repairs (200 days) ...	80	
Manures and fertilizers ... .. 375	375	
Crude oil for orchard heaters ... .. 50	50	
Contingencies and replacements ... .. 150	150	
		<u>855</u>
		<u>£E.1,643</u>
Total initial expenditure ... ..	£E.10,769	
Total recurrent expenditure for six years	£E.9,858	









